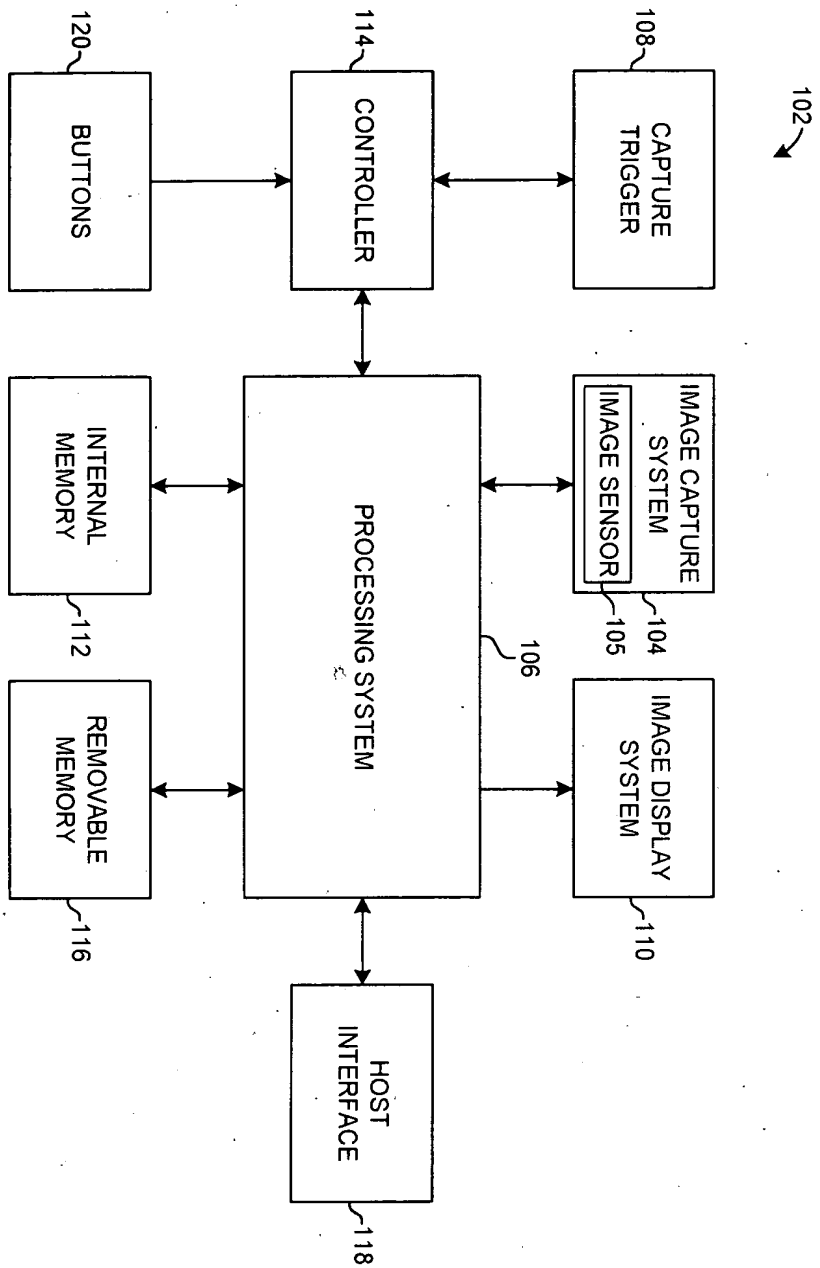
102
108
CAPTURE TRIGGER
114
CONTROLLER
120
BUTTONS
IMAGE CAPTURE SYSTEM
IMAGE SENSOR
104
105
PROCESSING SYSTEM
106
INTERNAL MEMORY
112
REMOVABLE MEMORY
116
IMAGE DISPLAY SYSTEM
110
HOST INTERFACE
118

FIG. 1

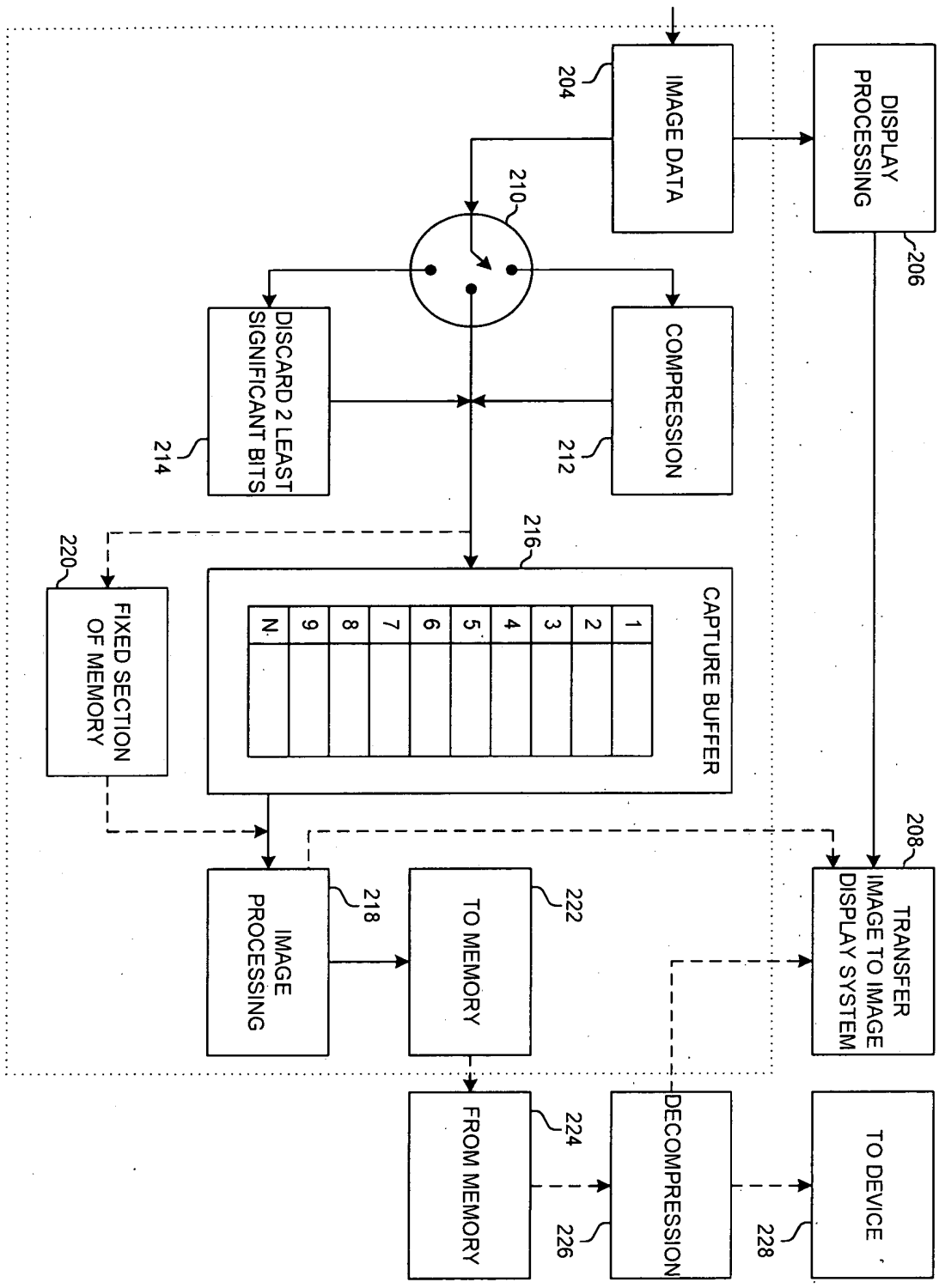
IMAGE DATA
204
DISPLAY PROCESSING
206
210
DISCARD 2 LEAST SIGNIFICANT BITS
214
COMPRESSION
212
216
CAPTURE BUFFER
1
2
3
4
5
6
7
8
9
N
220
FIXED SECTION OF MEMORY
208
TRANSFER IMAGE TO IMAGE DISPLAY SYSTEM
IMAGE PROCESSING
218
TO MEMORY
222
FROM MEMORY
224
226
DECOMPRESSION
228
TO DEVICE
202

FIG. 2

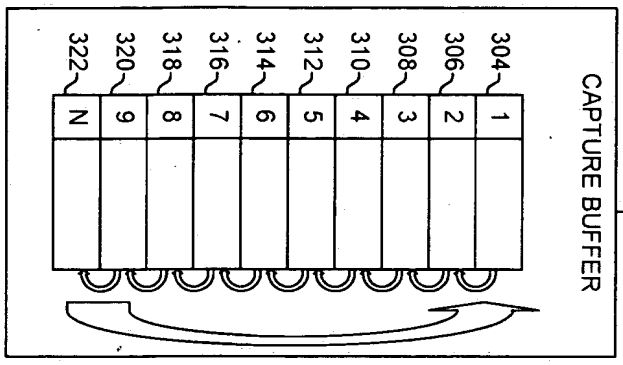

FIG. 3A

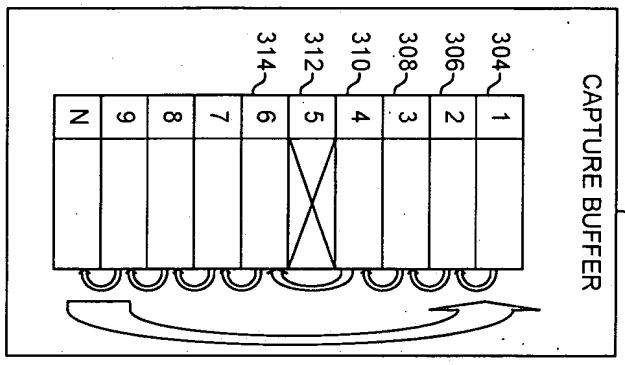

FIG. 3B

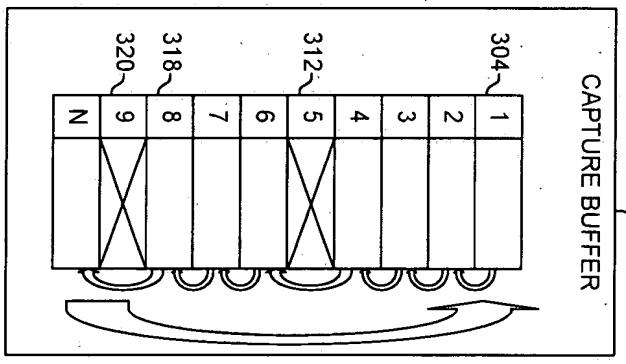

FIG. 3C

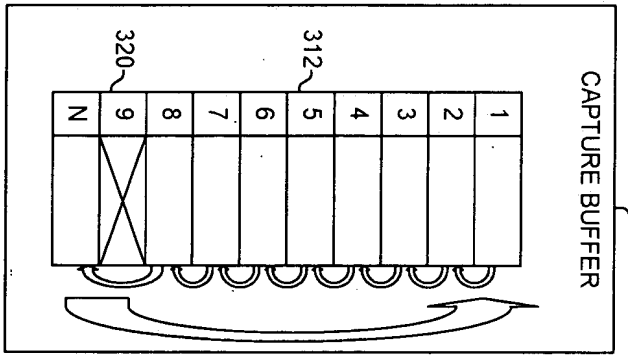

FIG. 3D

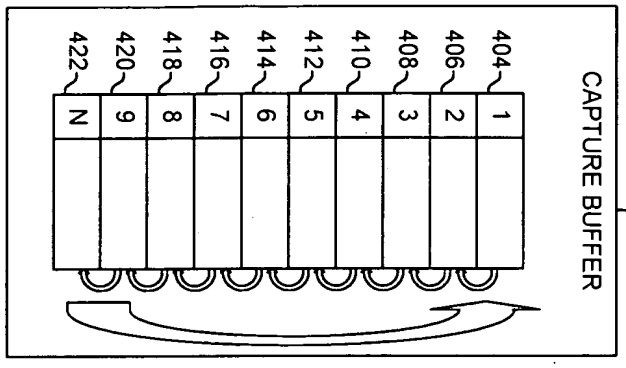

FIG. 4A

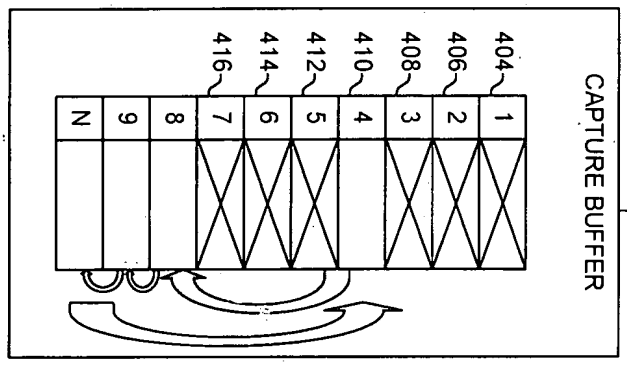

FIG. 4B

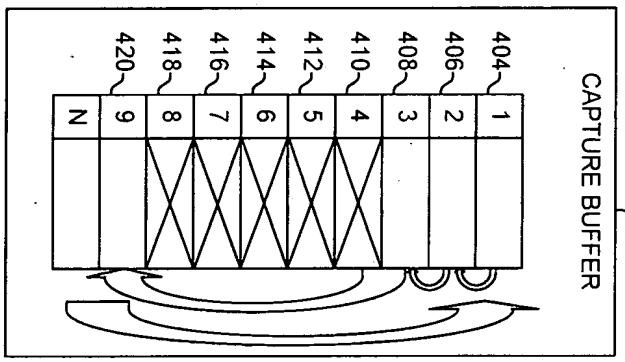

FIG. 4C

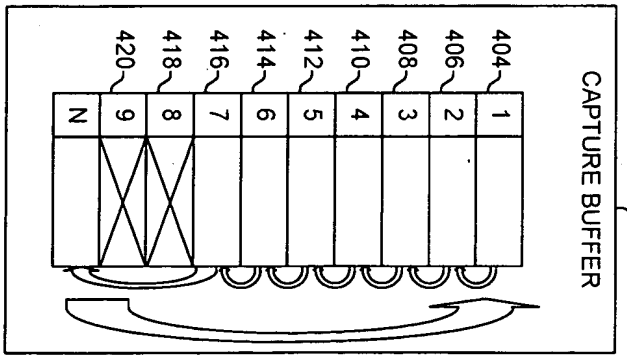

FIG. 4D

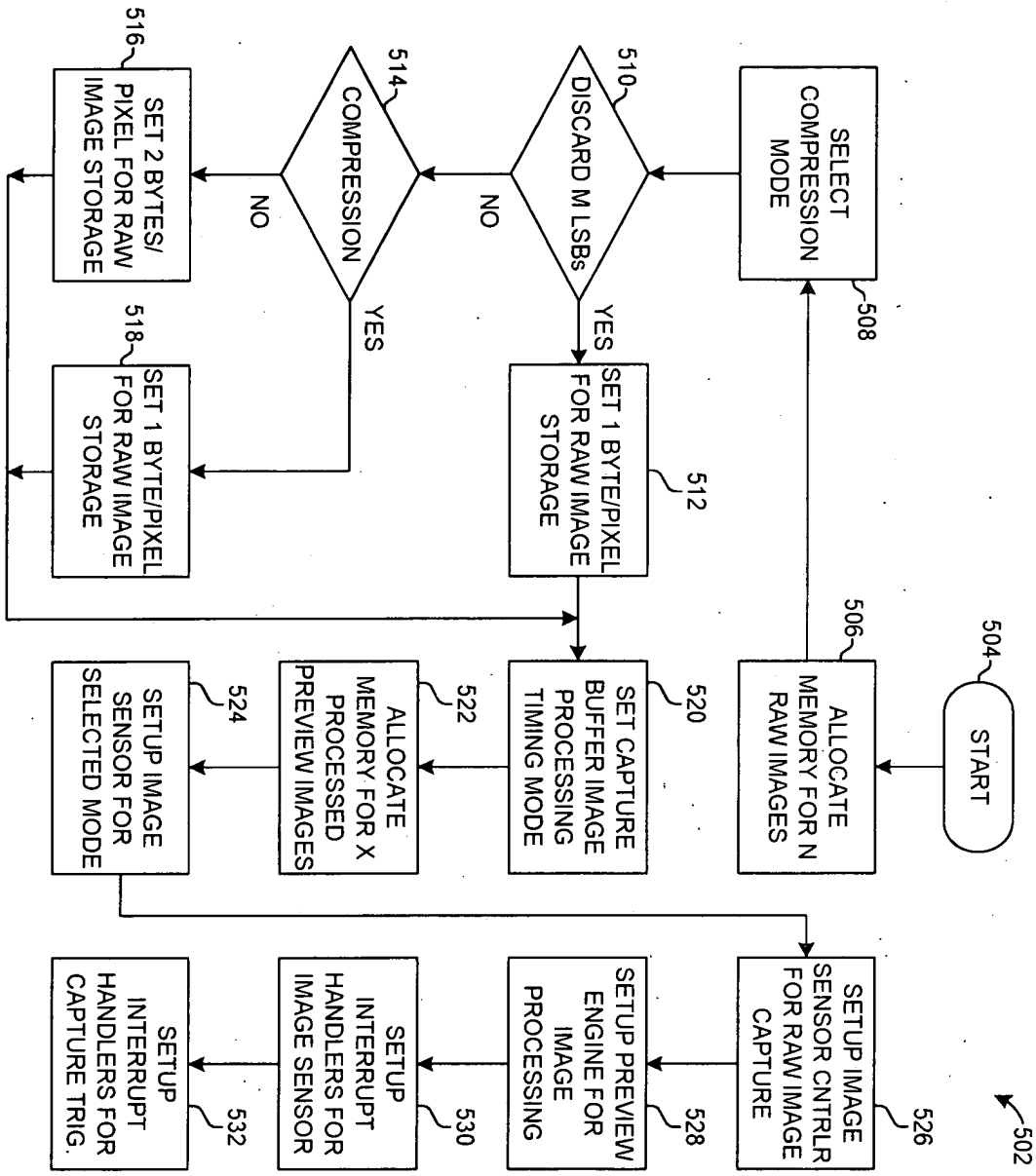
502
START
504
ALLOCATE MEMORY FOR N RAW IMAGES
506
SELECT COMPRESSION MODE
508
DISCARD M LSBs
510
YES
NO
SET 1 BYTE/PIXEL FOR RAW IMAGE STORAGE
512
COMPRESSION
514
YES
NO
SET 1 BYTE/PIXEL FOR RAW IMAGE STORAGE
518
SET 2 BYTES/ PIXEL FOR RAW IMAGE STORAGE
516
SET CAPTURE BUFFER IMAGE PROCESSING TIMING MODE
520
ALLOCATE MEMORY FOR X PROCESSED PREVIEW IMAGES
522
SETUP IMAGE SENSOR FOR SELECTED MODE
524
SETUP IMAGE SENSOR CNTRLR FOR RAW IMAGE CAPTURE
526
SETUP PREVIEW ENGINE FOR IMAGE PROCESSING
528
SETUP INTERRUPT HANDLERS FOR IMAGE SENSOR
530
SETUP INTERRUPT HANDLERS FOR CAPTURE TRIG.
532

FIG. 5

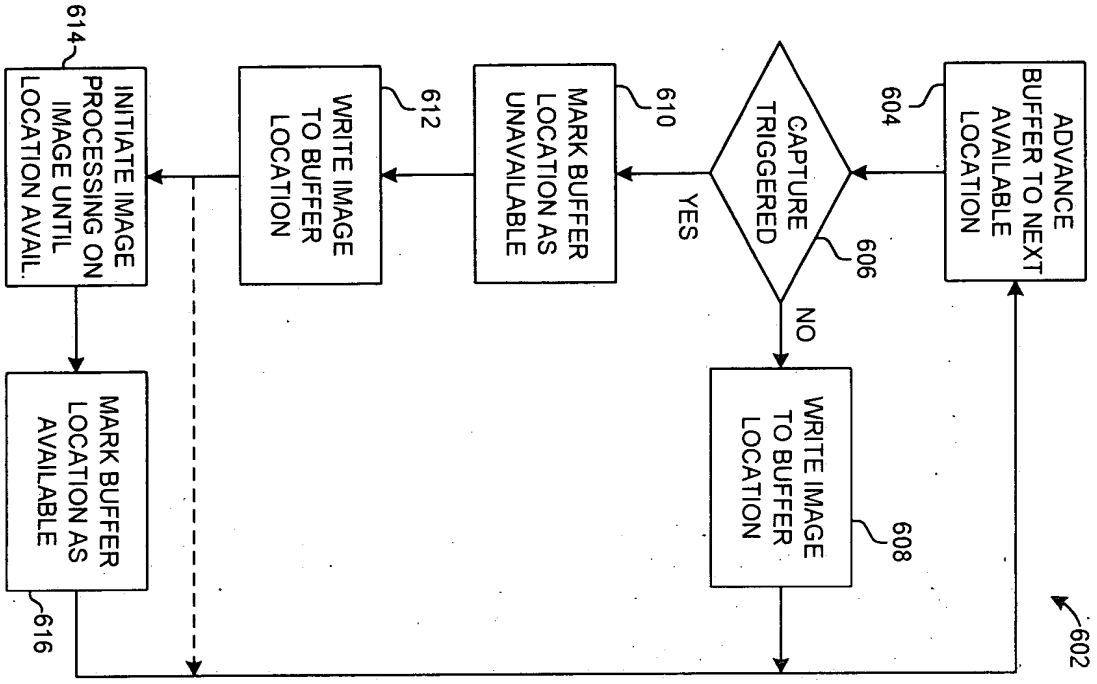
ADVANCE BUFFER TO NEXT AVAILABLE LOCATION
604
CAPTURE TRIGGERED
606
YES
NO
MARK BUFFER LOCATION AS UNAVAILABLE
610
WRITE IMAGE TO BUFFER LOCATION
612
INITIATE IMAGE PROCESSING ON IMAGE UNTIL LOCATION AVAIL.
614
MARK BUFFER LOCATION AS AVAILABLE
616
WRITE IMAGE TO BUFFER LOCATION
608
602

FIG. 6

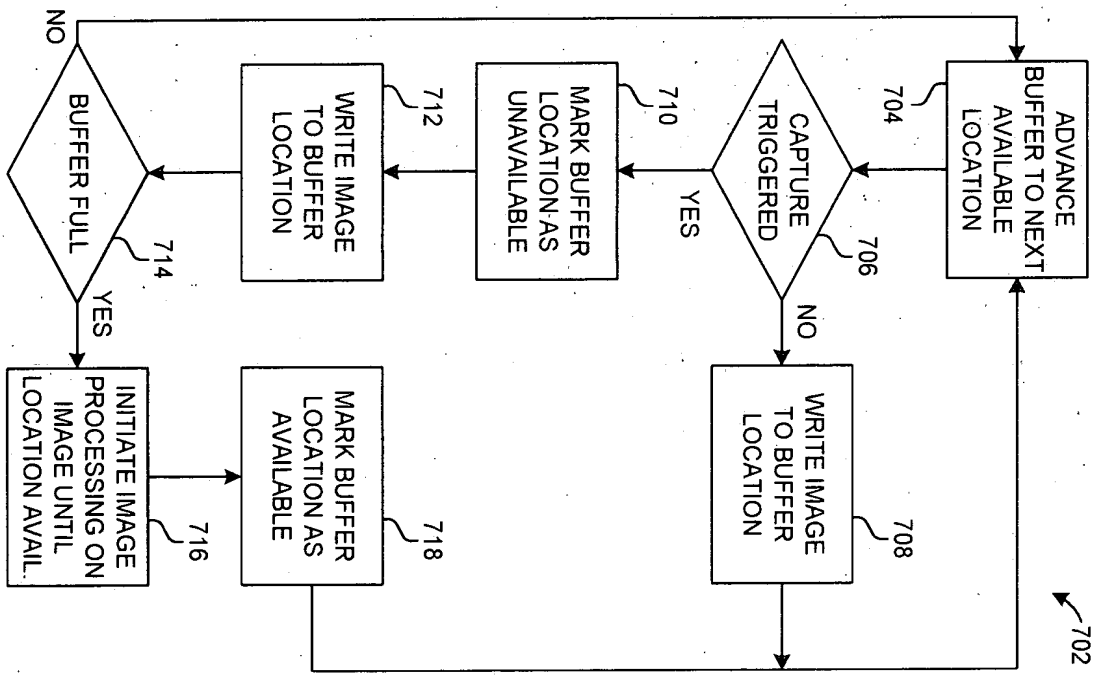
ADVANCE BUFFER TO NEXT AVAILABLE LOCATION
704
CAPTURE TRIGGERED
706
YES
NO
MARK BUFFER LOCATION AS UNAVAILABLE
710
WRITE IMAGE TO BUFFER LOCATION
712
BUFFER FULL
714
NO
YES
INITIATE IMAGE PROCESSING ON IMAGE UNTIL LOCATION AVAIL.
716
MARK BUFFER LOCATION AS AVAILABLE
718
WRITE IMAGE TO BUFFER LOCATION
708
702

FIG. 7

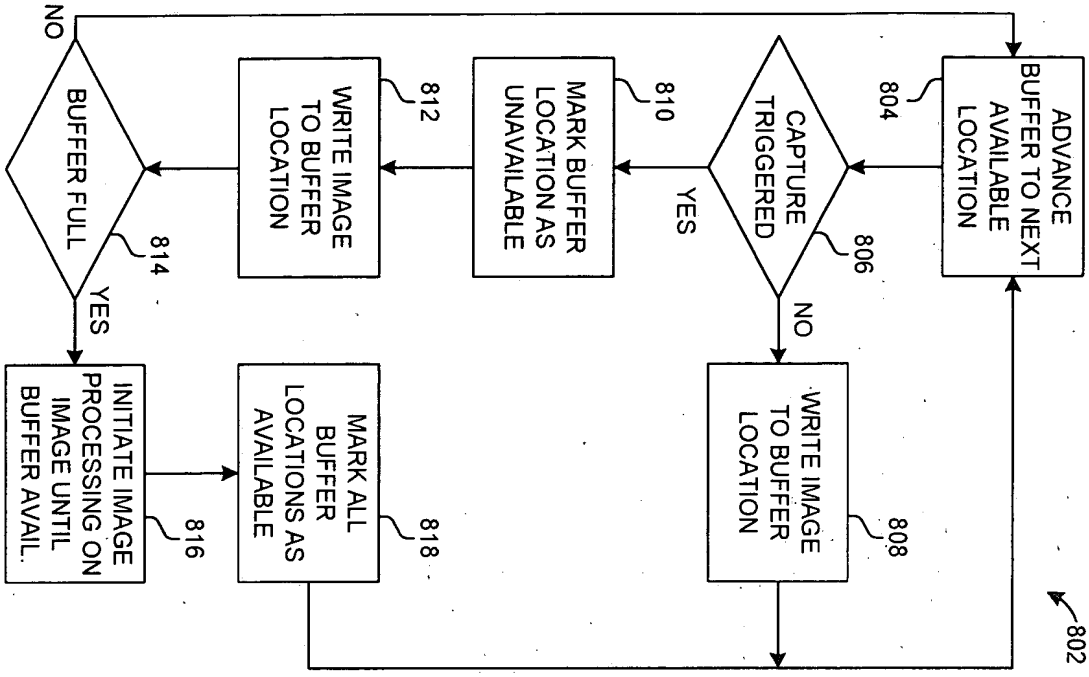
ADVANCE BUFFER TO NEXT AVAILABLE LOCATION
804
CAPTURE TRIGGERED
806
YES
NO
MARK BUFFER LOCATION AS UNAVAILABLE
810
WRITE IMAGE TO BUFFER LOCATION
812
BUFFER FULL
814
NO
YES
WRITE IMAGE TO BUFFER LOCATION
808
MARK ALL BUFFER LOCATIONS AS AVAILABLE
818
INITIATE IMAGE PROCESSING ON IMAGE UNTIL BUFFER AVAIL.
816
802

FIG. 8

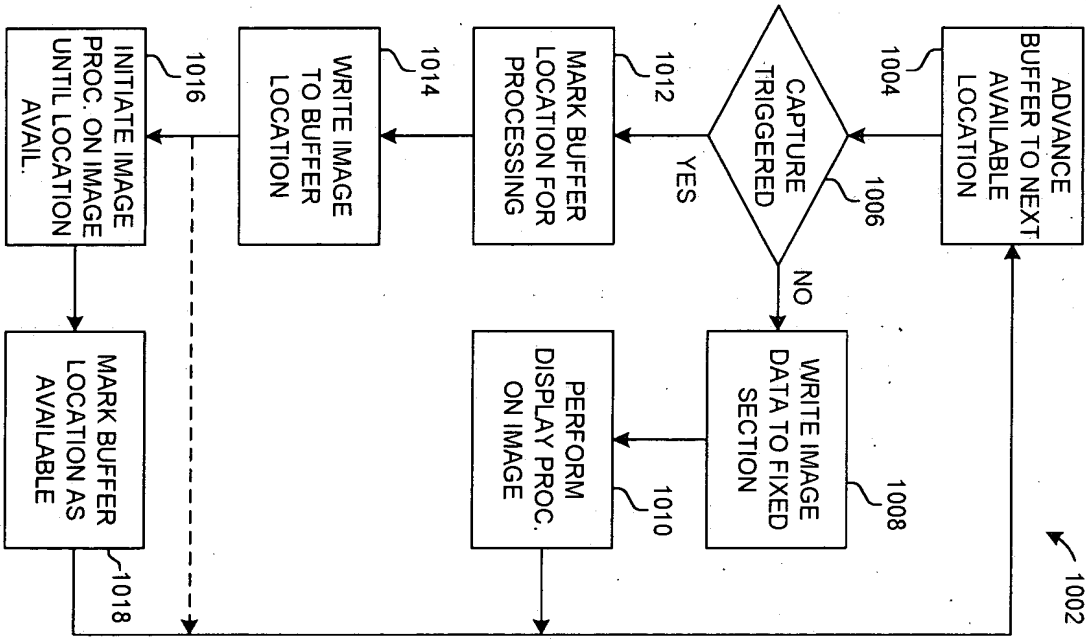
ADVANCE BUFFER TO NEXT AVAILABLE LOCATION
1004
CAPTURE TRIGGERED
1006
YES
NO
MARK BUFFER LOCATION FOR PROCESSING
1012
WRITE IMAGE TO BUFFER LOCATION
1014
INITIATE IMAGE PROC. ON IMAGE UNTIL LOCATION AVAIL.
1016
WRITE IMAGE DATA TO FIXED SECTION
1008
PERFORM DISPLAY PROC. ON IMAGE
1010
MARK BUFFER LOCATION AS AVAILABLE
1018
1002

FIG. 10

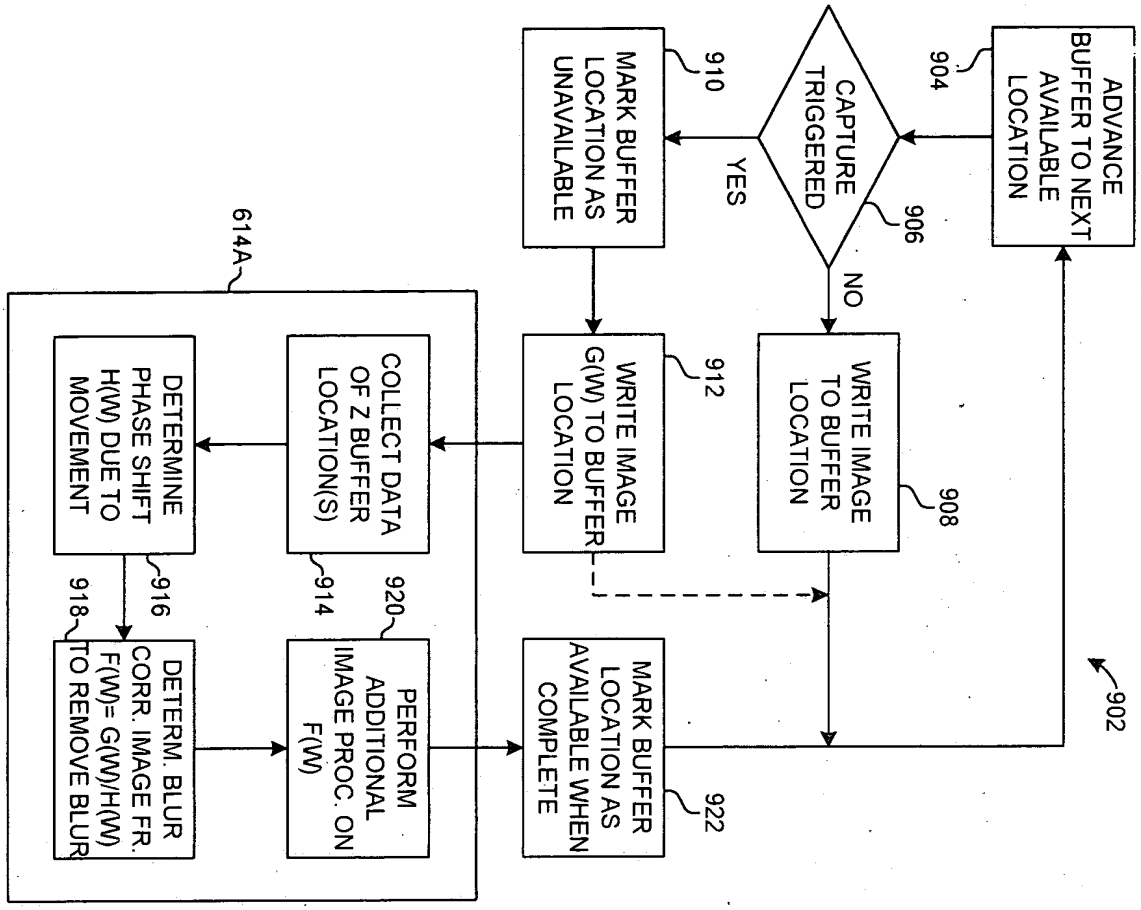
ADVANCE BUFFER TO NEXT AVAILABLE LOCATION
904
CAPTURE TRIGGERED
906
YES
NO
MARK BUFFER LOCATION AS UNAVAILABLE
910
WRITE IMAGE TO BUFFER LOCATION
908
WRITE IMAGE G(W) TO BUFFER LOCATION
912
614A
COLLECT DATA OF Z BUFFER LOCATION(S)
914
DETERMINE PHASE SHIFT H(W) DUE TO MOVEMENT
916
DETERM. BLUR CORR. IMAGE FR. F(W)= G(W)/H(W) TO REMOVE BLUR
918
PERFORM ADDITIONAL IMAGE PROC. ON F(W)
920
MARK BUFFER LOCATION AS AVAILABLE WHEN COMPLETE
922
902

FIG. 9

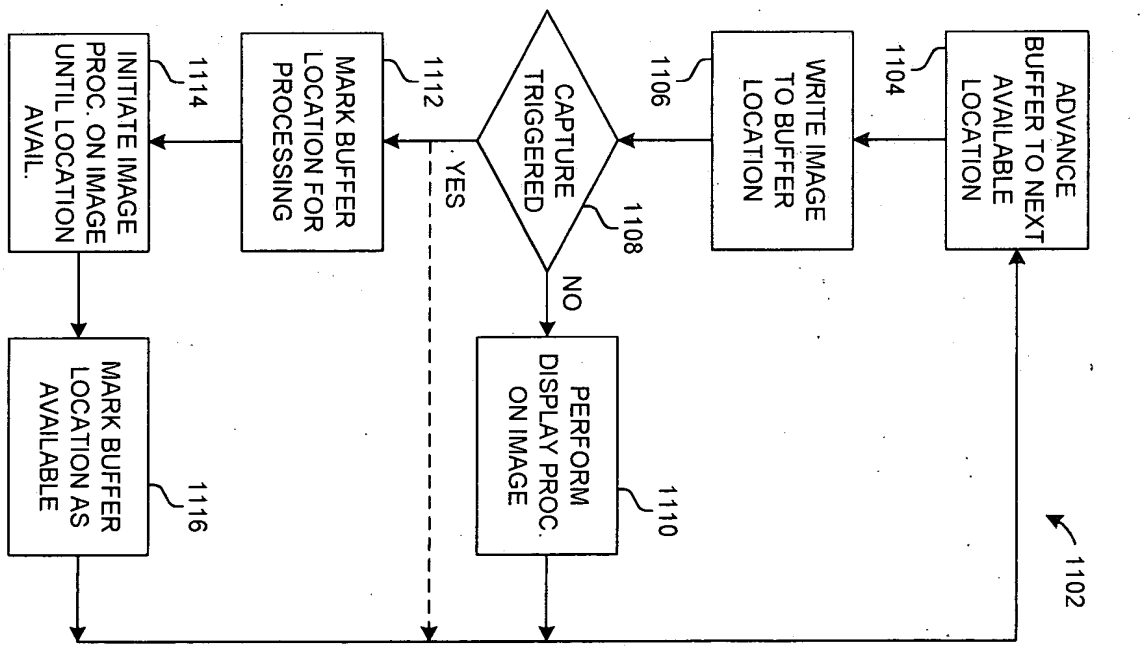
ADVANCE BUFFER TO NEXT AVAILABLE LOCATION
1104
WRITE IMAGE TO BUFFER LOCATION
1106
CAPTURE TRIGGERED
1108
YES
NO
MARK BUFFER LOCATION FOR PROCESSING
1112
INITIATE IMAGE PROC. ON IMAGE UNTIL LOCATION AVAIL.
1114
PERFORM DISPLAY PROC. ON IMAGE
1110
MARK BUFFER LOCATION AS AVAILABLE
1116
1102

FIG. 11